

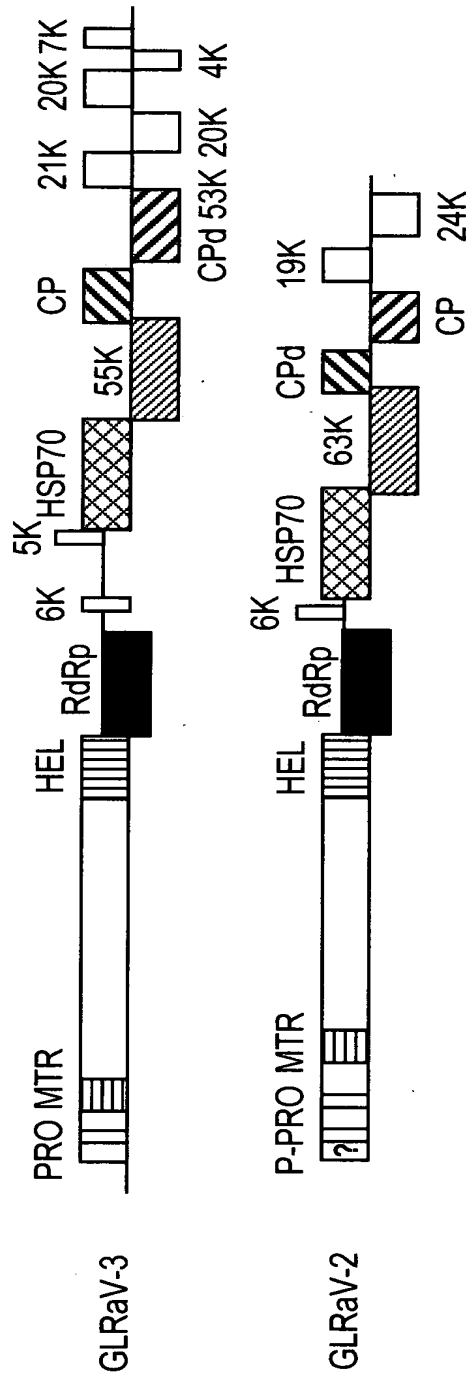
TECH CENTER 1600/2900

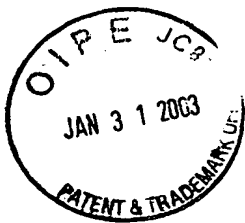
FEB 03 2003

24
4 formal
Drawings

RECEIVED

FIG. 1





RECEIVED
FEB 03 2003
TECH CENTER 1600/2900

2/24
FIG. 2A

ctaagtaaca	cctaggaatt	tctacctaag	attcaacttc	tttctttttc	tagtttttaa	60
ttttcctgct	gtttgaggga	agtttgccct	tcttcttcgc	tcgtccttcg	taaaccatta	120
tttctatttc	ctctcctttt	aagtttttaa	gtttcgctat	ggactacatt	cgcccatgct	180
gcgtttttct	ctttcttcac	gttaataaca	ccttgagtag	cgtaggtac	aacaaggcca	240
atggtgatgt	aggagctttc	ctaaccacca	tgaagttcat	agggaaacgt	aagttgtcgg	300
acttcacacc	caggtgcgca	gctatgattt	acattggaaa	gctcaccaaa	ggggtgaagc	360
gtacgtttgt	ccccccacca	gttaaagggt	ttgcacggca	gtacgctggt	gtcagcggct	420
cagtcagcgc	gctgagaggg	gatggtaaga	aggtcttgat	ggaggcaagg	acctcaactt	480
ccgcaacttc	cgacgtgtct	gatttcgacg	tcgtattcga	agctgtttct	aatgcattac	540
ttgtcgtaca	ctaccaccgg	gtagtgcctg	atgccccctg	caagcgcgag	cagcctaaac	600
cggtctgtaa	gcaagatgag	cagaagccca	aacggcaagc	gtcacattgg	gctgttaagc	660
caacagctgt	tggcgtccac	gtaccacttc	ctaaaaaaca	ggaagcactg	gagccagcgc	720
aatcagctcc	acaacagtcg	ttggaggaga	aggccgcctt	gacgtttggc	cttttcttca	780
gtaaagggtg	gggtgatgag	agcgacgctg	tcattcttgc	gaaagggaaa	ttgtttaaca	840
gggcccctaa	tgttcctatt	gatgtaaaga	acacgttcgt	ttgggctaaa	atctgggatg	900
aagcctctcg	taggagaggg	tattttttac	tcaaagatag	agctgttaaa	ttcttcccta	960
ttgtgcgggg	tagggctacg	atcgaggact	tcattcgtga	tacagcccca	gggtgtgatg	1020
ttgccttgcc	gcgcattgag	ttgtggagta	tgccgcgaaag	ggcgtttgta	tgccaccacca	1080
aagggtggtg	ttggtttaac	aatgagaggg	tgaggggaga	aatttacaga	cgctcgttgc	1140
tctcatcttc	cttttcgata	ggtttcttga	tgccacttgg	ctttagatcg	ttaaagggtca	1200
ttaggtttgc	gggcacgaac	atactacaca	tgccatcact	caatgaagag	cgtacctttg	1260
ggtggaaggg	cggagacgtc	tatctcccca	atgtcccaaa	aaccgctatc	gtcgtctggcg	1320
ataggacacg	gttgggaggg	gagatcttgg	cctccgtcgc	caatgccctt	aatcaagagg	1380
aggtctattc	atcggctcgt	tcgagtatca	ccaatagact	ggtattaagg	gaccaatcgg	1440
cattgctttc	ccatttgagc	acgaaattgt	gcgatatgtt	ttctcaaagg	gacgcaatga	1500
ttcgcgaaaa	accctcacat	aggtgcgatg	tgtttctgaa	gccgcgggaa	agggagaagc	1560
tgagggaact	ctttccagag	ctttcgatac	agttctccga	ctcggtcagg	agtagtcacc	1620
cattcgctaa	tgccatgcgg	agctgtttca	atggaaatct	ttccaggagg	tgtggtaatg	1680
tgtgcttctt	cgatattggg	gggagcttca	cgatatcatg	caaagctggc	catgtgaact	1740
gtcatgtatg	caatccagtc	ctagacgtta	aagatgtgaa	gcggagaatc	aatgagatcc	1800
tctttctttc	cacagctggg	ggagattcgt	acgtgtccag	tgaccttcta	actgaagcgg	1860
cttcaaagtc	tggtgtctta	tgtagtcgag	aatcgcagaa	ctgcgattct	agagccgatg	1920
cgggttttat	ggtggatgtg	tacgatata	ccccgcagca	ggtagcagag	gctatggata	1980
agaaggggtg	gctgggtttc	gacatagctc	ttatgttccc	cgtggagttg	ttgtacggta	2040
acgggtgaagt	ttacttgga	gaactcgata	cgttgggtga	gaggggaagg	gattacctgg	2100
cctacaatgt	tggctcagtgt	ggtgagatgt	atgaacattc	cttctctaac	gtaagcgggt	2160
ttttcacctt	ttcttatgta	cgcacttcgt	ccgggaacgt	gtttaagcta	gagtatgagg	2220
gataccgttg	tggttaccat	catctcacta	tggtgtaggg	tcagaagtca	cctgggaactg	2280
aggttacgta	taggtcgttg	gtcccgtcgt	tcgtgggcaa	atcgtctggt	ttcatacctg	2340
ttgtagctgg	ttctagtgtg	tcctttaaga	caatagtcct	cgattcggac	ttgttcgaca	2400
ggatctattc	ctacgcgctc	aacactatag	ggacattcga	gaatagaacg	tttgagtatg	2460
ccgttggggc	ggtcaggtcg	caaaagaccc	atgtcattac	agggagtcgc	gttggtccaca	2520
gcaagggtga	tatttctcct	gatgatattg	ggggtttagt	tgctcgtggt	atggctcagg	2580
cgattaagga	tagggcgaag	agtattcgtc	cctataactt	tataaaagcc	agtgagggga	2640
gtctcgccgg	ggtcttcaag	ctcttctttc	agaccgtagg	cgattgtttt	tcgaacgcag	2700
tctccgtcta	tgctaaggca	atggtgcacg	ataacttcaa	cgttttgagg	acgcttatgt	2760
ctatgccccg	agcgttcctc	cgtaaagtag	ctgggtctgt	tggtgttacc	atttgcaact	2820
ctggagcttc	agacaggttg	gagctcaggg	gtgcctttga	tatttcgaag	gagaccttcg	2880
gtaggaaact	gaagaatagt	cgcttgccgc	tcttctctag	ggctatcgtg	gaagattcaa	2940
ttaagggtcat	gaaggcaatg	aagacagaag	atggaaaacc	cctgccaat	actgaagatt	3000
ctgtatatgc	gttcataatg	gggaacgttt	ctaacgtcca	ctgtacgagg	gcaggtcttc	3060
ttggcgggtc	gaaagcgacc	gtggtttcga	gtgtttctaa	gggtttggta	gtcgtgggg	3120
ctgcgacgaa	ggccttttct	ggcattacgt	cgttcttttc	cacaggttca	ctattctacg	3180
accgcgggtt	aactgaagat	gaaaggcttg	atgctctggt	gcgcacagag	aatgctataa	3240



RECEIVED

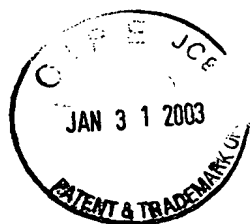
FEB 03 2003

TECH CENTER 1600/2900

3/24

FIG. 2B

actcaccggt	gggcatactg	gagacgtcgc	gcgtagctgt	gagcaaggtc	gtagctggaa	3300
cgaaagaatt	ttggagtga	gtttccttaa	atgacttcac	cactttcgta	ttgcggaata	3360
aggtgcttat	cgggatattc	gtggcgctct	tggtgctggc	cccaattgca	tggaagtata	3420
ggcgcggaat	tgcggctaac	gctagaaggt	acgcgggcag	tagttacgaa	actctaagct	3480
cgttaagtcc	acaagccgcc	ggtgggtttac	gcgggtttaac	ctctagcaca	gtatccggtg	3540
gatctttagt	cgtgcgaaga	gggttttcgt	cggcggtgac	cgtcactagg	gcgaccgtag	3600
ctaaacgtca	agtcccctta	gcgttgctat	cgttttctac	ctcatacgcc	atttccggtc	3660
gcagtatggt	aggcattttg	gcacatgctc	ttccacggca	cttaatgttt	ttcttttggt	3720
tagggacatt	gcttggggcg	agggctagcg	cgaatacttg	gaagtttgga	ggcttctcca	3780
ataattggtg	cgctgttccc	gaggttggtt	ggcgagggaa	gagtgtcagc	tcattgttac	3840
tgcctattac	gctaggggta	tctttgatca	taaggggctt	gcttaacgac	accatacctc	3900
aacttgctta	cgtcccaccg	gtagagggga	ggaatgtgta	cgatgagacg	cttaggtatt	3960
accgggactt	tgactatgac	gaaggtgctg	gtccatctgg	gactcagcat	gaagcggttc	4020
ccggtgacga	taacgatgga	tccacttcta	gtgtctcaag	ctatgatgtt	gtcacaaatg	4080
tgcgcgacgt	ggggattagc	accaacgggg	aagttactgg	tgaagaagag	acccattcac	4140
ctcgaagcgt	gcaatacact	tatgtcgagg	aagaggttgc	cccgtctgca	gctgtggcgg	4200
aaagacaagg	tgatccgtcg	ggttctggta	ccgctgacgc	tatggctttt	gttgaaagtg	4260
tgaaaaaagg	tgtcgacgat	gtctttcacc	aacagtctag	tggggaaacg	gctcgtgagg	4320
ttgaggtgga	cggcaaaggg	ttgctcccag	aaagcgtcgt	cggtgaggcg	ccgacacaag	4380
aaaggggaag	agctgcagat	ggtaacacag	cacaaaccgc	ggtcaacgaa	ggcgacaggg	4440
agccagtaca	gtccagtcct	gtgagttcgc	cacaggctga	tattccaaag	gtcaccaggt	4500
ccgaggtaca	tgctcagaaa	gaagtgaaac	aagaagtacc	attggcgact	gtttcgggcg	4560
ccacgccaat	cgtcgatgag	aaaccgcgcc	caagtgttac	gactcgtggt	gtgaagataa	4620
ttgacaaggg	caaggccgtc	gctcatgtgg	ctgagaaaaa	acaggtacaa	gtcgagcagc	4680
ccaaacagag	gagtttgacg	atcaatgaag	gcaaggccgg	taaacagctt	tgcatgttta	4740
gaacgtgttc	ctgcggtgtg	cagctggatg	tgtacaacga	agcgactatc	gccaccaggt	4800
tctcaaacgc	atttaccttt	gtcgataact	tgaaagggag	gagtgcggtc	tttttctcaa	4860
agctgggtga	ggggataacc	tataatgggt	gtagccatgt	ttcatcaggg	tggcctcgtg	4920
ccctagagga	tatcttaacg	gcaattgaat	accceaagct	cttcgaccac	tgtttagtgc	4980
agaagtacaa	gatgggtgga	ggcgtaccat	tccacgctga	tgacgaggag	tgctatccat	5040
cagataaccc	tatcttgacg	gtcaatctcg	tggggaaggc	aaacttctcg	actaagtgca	5100
ggaagggtgg	taagggtcatg	gtcataaacg	tagcttcggg	tgactatttt	cttatgcctt	5160
gcggttttca	aaggacgcac	ttgcattcag	taaactccat	cgacgaaggg	cgcattcagtt	5220
tgacgttcag	ggcaactcgg	cgctcttttg	gtgtaggcag	gatgttgag	ttagccggcg	5280
gcgtgtcgga	tgagaagtca	ccaggtgttc	caaaccagca	accacagagc	caaggtgcta	5340
ccagaacaat	cacaccaaaa	tcggggggca	aggctctatc	tgagggaagt	ggtagggaag	5400
tcaaggggag	gtcgacatac	tcgatatggt	gcgaacaaga	ttacgttagg	aagtgtgagt	5460
ggctcagggc	tgataatcca	gtgatggctc	ttgaacctga	ctacacccca	atgacatttg	5520
aagtgggttaa	aaccgggacc	tctgaagatg	ccgtcgtgga	gtacttgaag	tatctggcta	5580
taggcattga	gaggacatac	agggcggttg	ttatggctag	aaatattgcc	gtcactaccg	5640
ccgaagggtg	tctgaaagta	cctaatacaag	tttatgaatc	actaccgggc	tttcacgttt	5700
acaagtcggg	cacagatctc	atttttcatt	caacacaaga	cggcttgctg	gtgagagacc	5760
taccgtacgt	actcatagct	gaaaaaggta	tctttaccaa	gggcaaagat	gtcgacgcgg	5820
tggtagcttt	gggcgacaat	ctgttcgtat	gcgacgatat	actggttttc	cacgatgccca	5880
ttaatattgat	aggtgcactg	aaagtcgctc	gatgcggcat	ggtgggcgaa	tcgtttaagt	5940
ccttcgaata	taagtgctat	aatgctcccc	caggtggcgg	taagacgacg	acgttagtgg	6000
acgaattcgt	taagtcaccc	aatagcacag	ccaccattac	ggctaattgtg	ggaagttctg	6060
aggacataaa	tatggcggtg	aagaagagag	atccgaattt	ggaaggtctc	aacagtgcta	6120
ccacagttaa	ctccagggtg	gtaaacttta	tcgtcagggg	aatgtataaa	agggttttgg	6180
tgatgaggt	gcacatgatg	catcaaggct	tactacaact	aggcgtcttc	gcaaccggcg	6240
cgtcggaagg	cctctttttt	ggagacataa	atcagatacc	attcataaac	agggagaagg	6300
tgtttaggat	ggattgtgct	gtttttgttc	caaagaagga	aagcgttgta	tacacttcta	6360
aatcgtacag	gtgtccgtta	gatgtttgct	acttggtgtc	ctcaatgacc	gtaaggggaa	6420
cggaaaagtg	ttaccctgaa	aaggtcgtta	gcggtaagga	caaaccagta	gtaagatcgc	6480



RECEIVED
FEB 03 2003
TECH CENTER 1600/2900

4/24

FIG. 2C

tgtccaaaag	gccaatggga	accactgatg	acgtagctga	aataaacgct	gacgtgtact	6540
tgtgcatgac	ccagttggag	aagtcggata	tgaagaggte	gttgaaggga	aaaggaaaag	6600
aaacaccagt	gatgacagtg	catgaagcac	agggaaaaac	attcagtgat	gtggtattgt	6660
ttaggacgaa	gaaagccgat	gactccctat	tcactaaaca	accgcatata	cttggttggtt	6720
tgtcgagaca	cacacgctca	ctgggtttatg	ccgctctgag	ctcaaagttg	gacgataagg	6780
tcggcacata	tattagcgac	gcgtcacctc	aatcagtatc	cgacgctttg	cttcacacgt	6840
tcgccccggc	tggttgcttt	cgaggtatat	gagcgtatga	attttgacc	gaccttcgaa	6900
ggggagttgg	tacggaagat	accaacaagt	catttttag	ccgtgaatgg	gtttctcgag	6960
gacttactcg	acggttgtcc	ggctttcgac	tatgacttct	ttgaggatga	tttcgaaact	7020
tcagatcagt	ctttcctcat	agaagatgtg	cgcatttctg	aatctttttc	tcatttttacg	7080
tcgaaaatag	aggatagggt	ttacagtttt	attaggtcta	gcgtaggttt	accaaagcgc	7140
aacaccttga	agtgtaacct	cgtcacgttt	gaaaatagga	atttcaacgc	cgatcgcggt	7200
tgtaacgtgg	gttgtgacga	ctctgtggcg	catgaactga	aggagatttt	cttcgaggag	7260
gtcgttaaca	aagctcgttt	agcagaggtg	acggaaagcc	atttgtccag	caacacgatg	7320
ttgttatcag	attggttgga	caaaagggca	cctaacgctt	acaagtctct	caagcgggct	7380
ttaggttcgt	ttgtctttca	tccgtctatg	ttgacttctt	atacgtcat	ggtgaaagca	7440
gacgtaaaac	ccaagttgga	caatacgcca	ttgtcgaagt	acgtaacggg	gcagaatata	7500
gtctaccacg	ataggtgcgt	aactgcgctt	ttttcttgca	tttttactgc	gtgcgtagag	7560
cgcttaaaat	acgtagtgga	cgaaagggtg	ctcttctacc	acgggatgga	cactgcggag	7620
ttggcggctg	cattgaggaa	caatttgggg	gacatccggc	aatactacac	ctatgaactg	7680
gatatcagta	agtacgacaa	atctcagagt	gctctcatga	agcagggtga	ggagttgata	7740
ctcttgacac	ttggtgttga	tagagaagtt	ttgtctactt	tcttttgtgg	tgagtatgat	7800
agcgtcgtga	gaacgatgac	gaaggaattg	gtgttgtctg	tcggctctca	gaggcgcagt	7860
ggtgggtgcta	acacgtgggt	gggaaatagt	ttagtcttgt	gcaccttggt	gtccgtagta	7920
cttaggggat	tagattatag	ttatattgta	gttagcggtg	atgatagcct	tatathtagt	7980
cggcagccgt	tggatattga	tacgtcgggt	ctgagcgata	attttggttt	tgacgtaaag	8040
atttttaacc	aagctgctcc	atatttttgt	tctaagtttt	tagttcaagt	cgaggatagt	8100
ctcttttttg	ttcccgatcc	acttaaaactc	ttcgtaagt	ttggagcttc	caaaaacttca	8160
gatatcgacc	ttttacatga	gatttttcaa	tctttcgtcg	atctttcgaa	gggtttcaat	8220
agagaggacg	tcattccagga	attagctaag	ctgggtgacgc	ggaaatataa	gcattcggga	8280
tggacctact	cggctttgtg	tgtcttgcac	gttttaagtg	caaatttttc	gcagttctgt	8340
aggttatatt	accacaatag	cgtgaatctc	gatgtgcgcc	ctattcagag	gaccgagtcg	8400
ctttccttgc	tggccttgaa	ggcaagaatt	ttaaggtgga	aagcttctcg	ttttgccttt	8460
tcgataaaga	ggggttaatc	gcgttgggcca	cgctatagtg	tttctgtgcc	tcggttcttc	8520
gtgagggttaa	taccgaaggg	tcgtcgtact	tatctcagtt	atttattttt	tcgtcttctc	8580
ttaggcgtgc	catccgtgaa	gttaataaccg	gtggcactcc	ttctcgaagt	gggtattaaa	8640
gaccaaattt	ttttatttgt	gtgtactttt	tgttttgttc	acaccgtgag	gacaagaccg	8700
gtggaacatg	tacagtagag	ggtctttctt	taagtctcgg	gttacccttc	ctactcttgt	8760
cggagcatac	atgtgggagt	ttgaactccc	gtatcttacg	gacaagagac	acatcagcta	8820
tagcgcgcca	agtgtcgcga	cttttagcct	tgtgtcgagg	taggataggg	gccaacagggt	8880
gaccaacagc	ctgcacttaa	ggtgcgctgg	aagtgttgga	tttgggtctca	gtgtgccaaa	8940
tatcctttta	ggcgatgtac	aggagtctag	tttagtgtgt	ctttggggga	tgacgggagc	9000
gactaggttt	aggactgtag	ctgctatgta	agtcgtgcat	gcggcattgt	gcgtaagacg	9060
tgcatgcatt	tgggcgagtg	ccctagggca	gcgtcggtea	ggtgactagc	agccggctct	9120
acggagcgct	gaaagtgcta	ggtcctgaag	gtacagttgg	gctgaggcag	gacatggttg	9180
aacgagttga	ccgtggggac	cagcggcggt	gactcggggc	gtagccacgc	gcggggcggc	9240
agggcgctct	gtggtgtatc	tgggcaagat	acggccttat	taggcaccat	aatatggagc	9300
ccaaagcgte	ggggtcggga	aacatctcca	tagcttagtg	gcagcagcct	aagataggct	9360
gggaggcccg	ttccctgtag	tagtggtggg	ttagcatgcc	actaagcggg	gcggcggtat	9420
aaggcgccac	cgtccgtagt	taggcgaccc	gtgttttaat	agggtctctt	tagttaagtt	9480
taggcatgtc	gtacagttag	gatttctttt	tagatattct	tttatttttt	attgtttgtt	9540
agtttagatg	tacattatta	cgtaggttac	tttggcgcta	cgccagagggt	ttttctctct	9600
tgtgtgtagc	ctttaatgta	ggtttctttg	ttttattttt	gcctttcagg	cggcgcgttt	9660
cttttcttct	atttaggttt	atcttctttc	cttagtgttg	tcgtatatga	cgctacgtcc	9720



5/24

FIG. 2D

aaattatgaa	ttttccttcg	tgtaggcgtc	gttgagtgcg	ttcatcggcg	ctagacgagg	9780
tttagtggcg	acataaatag	gtttttgcgc	gagattggga	tagaacgagt	tcgccttaaa	9840
agagaaatcg	gggaaggcgc	cacgcgaatg	accttcgtgc	tgagcgaagg	tagtatcgtg	9900
attttatatt	gaagtaggcg	tattttgttta	tggatgattt	taaacaggca	atactgttgc	9960
tagtagtcga	ttttgtcttc	gtgataattc	tgctgctggt	tcttacgttc	gtcgtcccga	10020
ggttacagca	aagctccacc	attaatacag	gtcttaggac	agtgtgattc	ctcctttagt	10080
tagatatgga	agtaggtata	gattttggaa	ccactttcag	cacaatctgc	ttttcccat	10140
ctggggtcag	cggttgtact	cctgtggccg	gtagtgttta	cgttgaaacc	caaattttta	10200
tacctgaagg	tagcagtact	tacttaattg	gtaaagctgc	ggggaaagct	tatcgtgacg	10260
gtgtagaggg	aaggttgtat	gttaaccgca	aaagggtggc	aggtgtgacg	agggataacg	10320
tcgaacgcta	cgtcgagaaa	ttaaaaccta	catacaccgt	gaagatagac	agcggaggcg	10380
ccttattaat	tggagggttta	ggttccggac	cagacacctt	attgagggtc	gttgacgtaa	10440
tatgtttatt	cttgagagcc	ttgatactgg	agtgcgaaag	gtatacgtct	acgacggtta	10500
cagcagctgt	tgtaacggta	cgggctgact	ataactcctt	taaacgaagc	ttcgttgttg	10560
aggcgctaaa	aggtccttgg	ataccggtta	gaggtgttgt	taacgaaccg	acggccgcag	10620
ccctctattc	cttagctaag	tcgcgagtag	aagacctatt	attagcgggt	tttgattttg	10680
ggggaggggac	tttcgacgtc	tcattcgtta	agaagaaggg	aaatatacta	tgcgatcatc	10740
tttcagtggg	tgataatttc	ttgggtggta	gagatattga	tagagctatc	gtggaagtta	10800
tcaaacaaaa	gatcaaagga	aaggcgctcg	atgccaaagt	agggatatcc	gtatcctcga	10860
tgaaggaaga	cttgtctaac	aataacgcta	taacgcaaca	ccttatcccc	gtagaagggg	10920
gtgtggaggt	tgtggatttg	actagcgacg	aactggacgc	aatcgttgca	ccattcagcg	10980
ctagggtctgt	ggaagtattc	aaaactggtc	ttgacaactt	ttaccagacg	ccggttattg	11040
ccgttatgac	tgggggggtca	agtgtctctag	ttaaggtcag	gagtgatgtg	gctaattttgc	11100
cgcagatata	taaagtcgtg	ttcgacagta	ccgatttttag	atgttcgggtg	gcttgtgggg	11160
ctaagggttta	ctgcgatact	ttggcaggta	atagcggact	gagactgggtg	gacactttta	11220
cgaatacgtc	aacggacgag	gtagtgggtc	ttcagccggt	ggtaattttc	ccgaaaggta	11280
gtccaatacc	ctgttcataat	actcatagat	acacagtggg	tgggtggagat	gtggtatac	11340
gtatatattga	aggggagaa	aacagagcct	ttctaaatga	gccgacgttc	cggggcgat	11400
cgaacgtag	gggagaccca	gtagagaccg	acgtggcgca	gtttaatctc	tccacggacg	11460
gaacggtgtc	tggtatcgtt	aatgggtgagg	aagtaaagaa	tgaatatctg	gtaccgggga	11520
caacaaacgt	actggattca	ttggtctata	aatctgggag	agaagattta	gaggctaagg	11580
caataccagc	gtacttgacc	acactgaaata	ttttgcacga	taaggccttc	acgaggagaa	11640
acctgggtaa	caaagataag	gggttctcgg	atttaaggat	agaagaaaat	tttttaaaaat	11700
ccgccgtaga	tacagacacg	attttgaatg	gataaatata	tttatgtaac	ggggtatatta	11760
aaccctaacg	aggctagaga	cgagggtattc	tcggtagtga	ataagggata	tattggaccg	11820
ggagggcgct	ccttttcgaa	tcgtggtagt	aagtacaccg	tcgtctggga	aaactctgct	11880
gcgaggatta	gtggattttac	gtcgacttcg	caatctacga	tagatgcctt	cgcgtatttc	11940
ttgttgaaag	gcggattgac	taccacgctc	tctaacccaa	taaactgtga	gaattgggtc	12000
aggctcatcta	aggattttaag	cgcgtttttc	aggaccctaa	ttaaaggtaa	gatttatgca	12060
tcgcgttctg	tggacagcaa	tcttccaaag	aaagacaggg	atgacatcat	ggaagcgagt	12120
cgacgactat	cgccatcgga	cgcgcctttt	tgacagagcag	tgctcggttca	ggtagggaag	12180
tatgtggacg	taacgcagaa	tttagaaagt	acgatcgtgc	cgttaagagt	tatggaaata	12240
aagaaaagac	gaggatcagc	acatgttagt	ttaccgaagg	tggtatccgc	ttacgtagat	12300
ttttatacga	acttgcagga	attgctgtcg	gatgaagtaa	ctagggccag	aaccgataca	12360
gtttcggcat	acgctaccga	ctctatggct	ttcttagtta	agatgttacc	cctgactgct	12420
cgtgagcagt	ggttaaaaga	cgtgctagga	tatctgctgg	tacggagacg	accagcaa	12480
ttttcctacg	acgtaaagagt	agcttgggta	tatgacgtga	tcgctacgct	caagctgggtc	12540
ataagattgt	ttttcaacaa	ggacacaccc	gggggtatta	aagacttaaa	accgtgtgtg	12600
cctatagagt	cattcgaccc	ctttcacgag	ctttcgtcct	atttctctag	gttaagtta	12660
gagatgacga	caggtaaagg	gggaaagata	tgcccgagga	tcgcgagaa	gttggtgcgc	12720
cgtctaattg	aggaaaacta	taagttaaga	ttgacccag	tgatggcctt	aataattata	12780
ctggtatact	actccattta	cggcacaaac	gctaccagga	ttaaaagacg	cccgattttc	12840
ctcaatgtga	ggataaagg	aagagtcgag	aaggtttcgt	tacggggggt	agaagatcgt	12900
gcctttagaa	tatcagaaaa	gcgcgggata	aacgctcaac	gtgtattatg	taggtactat	12960



RECEIVED
FEB 03 2003
TECH CENTER 1600/2900

6/24

FIG. 2E

agcgatctca	catgtctggc	taggcgacat	tacggcattc	gcaggaacaa	ttggaagacg	13020
ctgagttatg	tagacgggac	gttagcgtat	gacacggctg	attgtataac	ttctaagggtg	13080
agaaatacga	tcaacaccgc	agatcacgct	agcattatac	actatatcaa	gacgaacgaa	13140
aaccaggtta	ccggaactac	tctaccacac	cagctttaaa	gctgcgtgta	gtatgcgacg	13200
atgtttctcg	tattagtttt	ataaaaattt	ttaattgtct	tgtgtgtggt	ttttgttgag	13260
tgaacgcgat	ggcatttgaa	ctgaaattag	ggcagatata	tgaagtgcgc	cccgaaaata	13320
at ttgagagt	tagagtgggg	gatgcggcac	aaggaaaatt	tagtaaggcg	agtttcttaa	13380
agtacgttaa	ggacgggaca	caggcggaat	taacgggaat	cgccgtagtg	cccgaaaaat	13440
acgtattcgc	cacagcagct	ttggctacag	cggcgcagga	gccacctagg	cagccaccag	13500
cgcaagtggc	ggaaccacag	gaaaccgata	taggggtagt	gccggaatct	gagactctca	13560
caccaaataa	gttggttttc	gagaaagatc	cagacaagtt	cttgaagact	atgggcaagg	13620
gaatagcttt	ggacttgggc	ggagttaacc	acaaaccgaa	agttattaac	gagccaggga	13680
aagtatcagt	agaggtggca	atgaagatta	atgccgcatt	gatggagctg	tgtaagaagg	13740
ttatggggcg	cgatgacgca	gcaactaaga	cagaattctt	cttgtagctg	atgcagattg	13800
cttgcaagtt	ctttacatcg	tcttcgacgg	agttcaaaga	gtttgactac	atagaaaccg	13860
atgatggaaa	gaagatatat	gcggtgtggg	tatatgattg	cattaaacaa	gctgctgctt	13920
cgacgggtta	tgaaaaccgc	gtaaggcagt	atctagcgta	cttcacacca	accttcatca	13980
cggcgaccct	gaatggtaaa	ctagtgatga	acgagaaggt	tatggcacag	catggagtac	14040
caccgaaatt	ctttccgtac	acgatagact	gcgttcgtcc	gacgtacgat	ctgttcaaca	14100
acgacgcaat	attagcatgg	aatttagcta	gacagcaggc	gtttagaac	aagacggtaa	14160
cggccgataa	caccttacac	aacgtcttcc	aactattgca	aaagaagtag	ctacgatcga	14220
tgtctataaa	ttggtgaaaa	at tttagaat	at ttaccttt	tattgataat	tcatgggagc	14280
ttatacacat	gtagactttc	atgagtcgcg	gttgctgaaa	gacaaacaag	actatctttc	14340
tttcaagtca	gcggatgaag	ctcctcctga	tcctcccggg	tacgttcgcc	cagatagtta	14400
tgtgagggct	tatttgatac	aaagagcaga	ctttcccaat	actcaaagct	tatcagttac	14460
gttatcgata	gccagtaata	agtttagcttc	aggtcttatg	ggaagcgacg	cagtatcatc	14520
gtcgtttatg	ctgatgaacg	acgtgggaga	ttacttcgag	tgccggcgtgt	gtcacaacaa	14580
accctactta	ggacgggaag	ttatcttctg	taggaaatac	ataggtggga	gaggagtggg	14640
gatcaccact	ggtaagaact	acacgtcgaa	caattggaac	gaggcgctcg	acgtaataca	14700
agtgaacgta	gtcgatgggt	tagcacagac	cactgttaat	tctacttata	cgcaaacgga	14760
cgttagtggg	ctacccaaaa	attggacgcg	tatctcaaaa	ataacaaaga	tagtgtccgt	14820
agatcagaac	ctctaccctg	gttggtttct	agactcgaaa	ctgggtgtaa	tgcgataaag	14880
gtcactgtta	gtttccccag	tgcgcatctt	ctttagggat	atcttattga	aacctttgaa	14940
gaaatcgttc	aacgcaagaa	tcgaggatgt	gctgaatatt	gacgacacgt	cgttgttagt	15000
accgagtcct	gtcgtaccag	agtctacggg	aggtgtaggt	ccatcagagc	agctggatgt	15060
agtggcttta	acgtccgacg	taacgggaat	gatcaacact	agggggcaag	gtaagatatg	15120
ttttccagac	tcagtgttat	cgatcaatga	agcggatatc	tacgatgagc	ggtat ttgcc	15180
gataacggaa	gctctacaga	taaacgcaag	actacgcaga	ctcgtttctt	cgaaaggcgg	15240
gagtcaaaca	ccacgagata	tggggaatat	gatagtggcc	atgatacaac	ttttcgtact	15300
ctactctact	gtaaagaata	taagcgtcaa	agacgggtat	aggggtggga	ccgaattagg	15360
tcaaaagaga	gtctacttaa	gttattcgga	agtaagggaa	gctatatatt	gagggaaata	15420
cgggtgcgtc	ccaaccaaca	ctgtgcgac	cttcatgagg	tattttgtct	acaccactat	15480
tactctactt	atagagaaga	aaattcagcc	agcgtgtact	gccctagcta	agcacggcgt	15540
cccgaagagg	ttcactccgt	actgcttcga	cttcgcacta	ctggataaca	gatattaccc	15600
ggcggacgtg	ttgaaggcta	acgcaatggc	ttgcgctata	gcgattaaat	cagctaattt	15660
aaggcgtaaa	ggttcgggga	cgtataacat	cttagaaagc	at ttgattat	ctaaagatgg	15720
aattcagacc	agttttaatt	acagttcgcc	gtgatcccg	cgtaaacact	ggtagtttga	15780
aagtgatagc	ttatgactta	cactacgaca	atatattcga	taactgcgcg	gtaaagtcgt	15840
ttcgagacac	cgacactgga	ttcactgtta	tgaagaata	ctcgacgaat	tcagcgttca	15900
tactaagtcc	ttataaaact	ttttccgcgg	tctttaataa	ggaaggtgag	atgataagta	15960
acgatgtagg	atcgagtttc	agggtttaca	atatcttttc	gcaaattgtgt	aaagatatca	16020
acgagatcag	cgagatacaa	cgcgccgggt	acctagaaac	atattttagga	gacgggcagg	16080
ctgacactga	tatat ttttt	gatgtcttaa	ccaacaacaa	agcaaaggta	aggtgggttag	16140
ttaataaaga	ccatagcgcg	tggtgtggga	tattgaatga	tttgaagtgg	gaagagagca	16200



RECEIVED
FEB 03 2003
TECH CENTER 1600/2300

7/24

FIG. 2F

acaaggagaa	attttaagggg	agagacatac	tagatactta	cgtttttatcg	tctgattatc	16260
cagggttttaa	atgaagttgc	tttcgctccg	ctatctttatc	ttaaggttgt	caaagtcgct	16320
tagaacgaac	gacacttgg	ttttaatact	tataaaggag	gcgcttataa	actattacaa	16380
cgctcttttc	accgatgagg	gtgccgtatt	aagagactct	cgcgaaagta	tagagaattt	16440
tctcgtagcc	aggtgcggtt	cgcaaaaattc	ctgccgagtc	atgaaggctt	tgatcactaa	16500
cacagtctgt	aagatgtcga	tagaaaacagc	cagaagtttt	atcgggagact	taatactcgt	16560
cgccgactcc	tctgttttcag	cgttggaaga	agcgaaatca	attaaagata	atttccgctt	16620
aagaaaaagg	agaggcaagt	attattatag	tgggtgattgt	ggatccgacg	ttgcgaaagt	16680
taagtatat	ttgtctgggg	agaatcgagg	attgggggtgc	gtagattcct	tgaagctagt	16740
ttgcgtaggt	agacaaggag	gtggaaacgt	actacagcac	ctactaatct	catctctggg	16800
ttaaagcatc	atggacctat	cgtttattat	tgtgcagatc	ctttccgcct	cgtacaataa	16860
tgacgtgaca	gcactttaca	ctttgattaa	cgcgataaat	agcgttgatg	atacgacgcg	16920
ctgggcagcg	ataaacgatc	cgcaagctga	ggttaacgtc	gtgaaggctt	acgtagctac	16980
tacagcgacg	actgagctgc	atagaacaat	tctcattgac	agtatagact	ccgccttcgc	17040
ttatgaccaa	gtgggggtgtt	tgggtgggcat	agctagaggt	ttgcttagac	attcggaaga	17100
tgttctggag	gtcatcaagt	cgatggagtt	attcgaagtg	tgtcgtggaa	agaggggaag	17160
caaaagatat	cttggtact	taagtgatca	atgcactaac	aaatacatga	tgctaactca	17220
ggccgggactg	gccgcagttg	aaggagcaga	catactacga	acgaatcatc	tagtcagtg	17280
taataagttc	tctccaaatt	tccggatcgc	taggatgttg	ctcttgacgc	tttgttgcg	17340
agcactataa	aatgttatg	ttgttcagcc	agtgtcaaat	tttcaaacgg	gttacaatta	17400
tcgctactta	tttgcgcatg	tttgtttagcg	gtgctaattg	ttagcttttg	tagaaggcga	17460
tgaggcactt	agaaaaaccc	atcagagtag	cggtacacta	ttgcgtcgtg	cgaagtgcg	17520
tttgtgacgg	gtgggatgta	tttataggcg	taacgttaat	cggtatgttt	attagttact	17580
atttatatgc	tctaattagc	atatgtagaa	aaggagaagg	tttaacaacc	agtaatgggt	17640
aaaaatcctt	caataaattt	gaaataaaca	aaagtaagaa	aaatgaaata	attaggctag	17700
tctttttgtt	cgtcttttcgc	ttttgtagaa	taggtttttat	ttcgaggtaa	gatgactaaa	17760
ctttacctca	cggttttaata	ctctgatatt	tgtaaaaatta	gtccgtaaa	tcgatagtga	17820
tattatatta	gtatagtata	ataaacgcca	aatccaatt	aaagtttggg	acctaggcgg	17880
gcctcttacg	aggctaactt	atcgacaata	agttaggtc			17919



Title: GRAPEVINE LEAFROLL VIRUS PROTEINS AND
THEIR USES

Applicant(s): Dennis Gonsalves et al.

Filing Date: April 29, 1999

Serial No.: 09/301,906

Page 8 of 24

Customer No.: 21559

RECEIVED

FEB 03 2003

TECH CENTER 1600/2900

8/24

FIG. 3

```
ctaagtaaca cctaggaatt tctacctaag attcaacttc tttctttttc tagtttttaa 60
ttttcctgct gtttgaggga agtttgcct tcttcttcg tcgtccttcg taaaccatta 120
tttctatttc ctctcctttt aagtttttaa gtttcgct 158
```




RECEIVED
FEB 03 2003
TECH CENTER 1600/2003

9/24

FIG. 4A

atggactaca	ttcgccatt	gcgcgttttc	tcctttcctc	acgttaataa	caccttgag	60
tacgttaggt	acaacaaggc	caatggtgat	gtaggagctt	tcctaaccac	catgaagttc	120
ataggaacg	tgaagttgtc	ggacttcaca	cccagggtgcg	cagctatgat	ttacattgga	180
aagctcacca	aaggggtgaa	gcgtacgttt	gtccccccac	cagttaaagg	gtttgcacgg	240
cagtacgtg	ttgtcagcgg	ctcagtcagc	gcgtgagag	gggatggtaa	gaaggctctg	300
atggaggcaa	ggacctcaac	ttccgcaact	tccgacgtgt	ctgatttcga	cgtcgatttc	360
gaagctgttt	ctaattgcatt	acttgctgta	cactaccacc	gggtagtgcc	gtatgcccc	420
gtcaagcgcg	agcagcctaa	accggtgttt	aagcaagatg	agcagaagcc	caaacggcaa	480
gcgtcacatt	gggctgttaa	gccaacagct	gttggtgtcc	acgtaccact	tcctaaaaaa	540
caggaagcac	tggagccagc	gcaatcagtc	ccacaacagt	cgttgaggga	gaaggccgcc	600
ttgacgtttg	gccttttctt	cagtaaagggt	gggggtgatg	agagcgacgc	tgtcatcttg	660
cggaaagggg	aattgtttaa	cagggccctt	aatgttccta	ttgatgtaaa	gaacacgttc	720
gtttgggcta	aaatctggga	tgaagcctct	cgtaggagag	ggtattttta	cgtcaaagat	780
agagctgtta	aattcttccc	tattgtgcgg	ggtagggtta	cgatcgagga	cttcacgttg	840
aatacagccc	caggggtgtga	tggtgccttg	ccgcgcattg	agttgtggag	tatgcgcgaa	900
agggcgtttg	tatgcaccac	caaagggtgg	tggtgggtta	acaatgagag	gctgagggga	960
gaaatttaca	gacgtcgttg	cttctcatct	tccttttcga	taggtttctt	gatgcacctt	1020
ggcttttagat	cgttaaagggt	cattaggttt	gcgggcacga	acatactaca	catgccatca	1080
ctcaatgaag	agcgtacctt	tgggtggaag	ggcggagacg	tctatctccc	caatgtccca	1140
aaaaccgcta	tcgtcgtcgg	cgataggaca	cggttgggag	gggagatctt	ggcctccgtc	1200
gccaatgccc	ttaatcaaga	ggaggtctat	tcacgtgtcg	tttcgagtat	caccaataga	1260
ctggtattaa	gggaccaatc	ggcattgctt	tcccatttgg	acacgaaatt	gtgcgatatg	1320
ttttctcaaa	gggacgcaat	gattcgcgaa	aaaccctcac	ataggtgcga	tgtgtttctg	1380
aagccgcggg	aaagggagaa	gctgagggaa	ctctttccag	agctttcgat	acagttctcc	1440
gactcggtea	ggagtagtca	cccattcgtt	aatgccatgc	ggagctgttt	caatggaatc	1500
ttttccagga	ggtgtggtaa	tgtgtgcttc	ttcgatattg	gggggagctt	cacgtatcat	1560
gtcaaagctg	gccatgtgaa	ctgtcatgta	tgcaatccag	tcctagacgt	taaagatgtg	1620
aagcggagaa	tcaatgagat	cctctttctt	tccacagctg	ggggagattc	gtacgtgtcc	1680
agtgccttc	taactgaagc	ggcttcaaag	tctgtgtctt	actgtagtgc	agaatcgcag	1740
aactgcgatt	ctagagccga	tgcggtgttt	atggtggatg	tgtacgatat	atccccgcag	1800
caggtagcag	aggctatgga	taagaagggt	gcgtgtgttt	tcgacatagc	tcttatgttc	1860
cccgtggagt	tggtgtacgg	taacggtgaa	gtttacttgg	aagaactcga	tactgtgggtg	1920
aagagggaag	gtgattacct	ggcctacaat	gttggtcagt	gtggtgagat	gtatgaacat	1980
tccttctcta	acgtaagcgg	gtttttccac	ttttcttatg	tacgcacttc	gtccgggaac	2040
gtgtttaagc	tagagtatga	gggataccgt	tgtggttacc	atcatctcac	tatgtgtagg	2100
gctcagaagt	cacctggaac	tgaggttacg	tataggtcgt	tggtcccgtc	gttcgtgggc	2160
aaatcgctgg	tgttcatacc	tggtgtagct	ggttctagt	tgctctttaa	gacaatagtc	2220
ctcgattcgg	actttgtcga	caggatctat	tcctacgcgc	tcaacactat	aggacattc	2280
gagaatagaa	cgtttgagta	tgccgttggg	gcggtcaggt	cgcaaaagac	ccatgtcatt	2340
acagggagtc	gcgttggtcca	cagcaagggt	gatattttct	ctgatgatat	gtgggggttta	2400
gttgctcgtg	ttatggctca	ggcgattaag	gatagggcga	agagtattcg	ctcctataac	2460
tttataaaag	ccagtgaggg	gagtcctgcc	gggtcttcca	agctcttctt	tcagaccgta	2520
ggcgattgtt	tttcgaacgc	agtctccgtc	tatgctaagg	caatggtgca	cgataacttc	2580
aacgtttttg	agacgcttat	gtctatgccc	agagcgttca	tccgtaaagt	acctgggtct	2640
gttggtgtta	ccatttgcac	ttctggagct	tcagacaggt	tggagctcag	gggtgccttt	2700
gatatttctga	aggagacctt	cggtaggaaa	ctgaagaata	gtcgcttgcg	cgtcttctct	2760
agggctatcg	tggaagattc	aattaagggt	atgaaggcaa	tgaagacaga	agatggaaaa	2820
cccctgccaa	ttactgaaga	ttctgtatat	gcgttcataa	tggggaacgt	ttctaacgtc	2880
cactgtacga	gggcaggtct	tcttgccggt	tcgaaagcga	ccgtggtttc	gagtgtttct	2940
aagggttttg	tagctcgtgg	ggctgcgacg	aaggcctttt	ctggcattac	gtcgttcttt	3000
tccacaggtt	cactattcta	cgaccgcggt	ttaactgaag	atgaaaggct	tgatgctctg	3060
gtgcgcacag	agaatgctat	aaactcaccg	gtgggcatac	tggagacgtc	gcgcgtagct	3120
gtgagcaagg	tcgtagctgg	aacgaaagaa	ttttggagtg	aagtttctct	aaatgacttc	3180
accactttcg	tattgcggaa	taaggtgctt	atcgggatat	tcgtggcgctc	tttgggtgcg	3240



RECEIVED
FEB 03 2003
TECH CENTER 1600/2900

10/24
FIG. 4B

gccccaatg	catggaagta	taggcgcgga	attgcggcta	acgctagaag	gtacgcgggc	3300
agtagttacg	aaactctaag	ctcgttaagt	tcacaagccg	cgggtggttt	acgcggttta	3360
acctctagca	cagtatccgg	tggatcttta	gtcgtgcgaa	gagggttttc	gtcggcggtg	3420
accgtcacta	gggcgaccgt	agctaaacgt	caagtcccct	tagcgttgct	atcgttttct	3480
acctcatacg	ccatttcggg	ctgcagtatg	ttaggcattt	gggcacatgc	tcttccacgg	3540
cacttaatgt	ttttctttgg	tttagggaca	ttgcttgggg	cgagggctag	cgcgaaatact	3600
tggaagtgtg	gaggcttctc	caataattgg	tgcgctgttc	ccgaggttgt	ttggcgaggg	3660
aagagtgtca	gctcattggt	actgcctatt	acgctagggg	tatctttgat	cataaggggc	3720
ttgcttaacg	acaccatacc	tcaacttgct	tacgtcccac	cggtagaggg	gaggaatgtg	3780
tacgatgaga	cgcttaggta	ttaccgggac	tttgactatg	acgaaggtgc	tgggtccatct	3840
gggactcagc	atgaagcggg	tcccgggtgac	gataacgatg	gatccacttc	tagtgtctca	3900
agctatgatg	ttgtcacaaa	tgtgcgcgac	gtggggatta	gcaccaacgg	ggaagttact	3960
ggtgaagaag	agacccattc	acctcgaagc	gtgcaataca	cttatgtcga	ggaagaggtt	4020
gccccgtctg	cagctgtggc	ggaaagacaa	ggtgatccgt	cgggttcttg	taccgctgac	4080
gctatggctt	ttgttgaaag	tgtgaaaaaa	ggtgtcgacg	atgtctttca	ccaacagtct	4140
agtggggaaa	cggtctgtga	ggttgagggtg	gacggcaaa	ggttgctccc	agaaagcgtc	4200
gtcggtgagg	cgccgacaca	agaaagggga	agagctgcag	atggtaacac	agcaciaaac	4260
gcgggtcaacg	aaggcgacag	ggagccagta	cagtccagtc	ttgtgagttc	gccacaggct	4320
gatattccaa	aggtcaccca	gtccgaggta	catgctcaga	aagaagtga	acaagaagta	4380
ccattggcga	ctgtttcggg	cgccacgcca	atcgtcgatg	agaaaccgcg	cccaagtgtt	4440
acgactcggtg	gtgtgaagat	aattgacaag	ggcaaggccg	tcgctcatgt	ggctgagaaa	4500
aaacagggtac	aagtcgagca	gcccacacag	aggagtttga	cgatcaatga	aggcaaggcc	4560
ggtaaacagc	tttgcatggt	tagaacgtgt	tcctgcgggtg	tgcagctgga	tgtgtacaac	4620
gaagcgacta	tcgccaccag	gttctcaaac	gcattttacct	ttgtcgataa	cttgaaaggg	4680
aggagtgcgg	tctttttctc	aaagctgggt	gaggggtata	cctataatgg	tggtagccat	4740
gtttcatcag	ggtggcctcg	tgccctagag	gatattctta	cggcaattaa	gtacccaagc	4800
gtcttcgacc	actgtttagt	gcagaagtac	aagatgggtg	gaggcgtaac	attccacgct	4860
gatgacgagg	agtgtatcc	atcagataac	cctatcttga	cgggtcaatct	cgtggggaag	4920
gcaaacttct	cgactaagtg	caggaagggt	ggtaagggtca	tggtcataaa	cgtagcttcg	4980
ggtgactatt	ttcttatgcc	ttgcgggttt	caaaggacgc	acttgcatte	agtaaaactcc	5040
atcgacgaag	ggcgcacag	tttgacgttc	agggcaacte	ggcgcgtctt	tggtgtaggc	5100
aggatgttgc	agttagccgg	cggcgtgtcg	gatgagaagt	caccaggtgt	tccaaaccag	5160
caaccacaga	gccaaggtgc	taccagaaca	atcacaccaa	aatcgggggg	caaggctcta	5220
tctgagggga	gtggtaggga	agtcaagggg	aggtcgacat	actcgatatg	gtgcgaacaa	5280
gattacgtta	ggaagtgtga	gtggctcagg	gctgataatc	cagtgatggc	tcttgaacct	5340
gactacaccc	caatgacatt	tgaagtgggt	aaaaccggga	cctctgaaga	tgccgtcggtg	5400
gagtacttga	agtatctggc	tataggcatt	gagaggacat	acagggcgtt	gcttatggct	5460
agaaatattg	ccgtcactac	cgccgaagggt	gttctgaaag	tacctaatca	agtttatgaa	5520
tcactaccgg	gctttcacgt	ttacaagtcg	ggcacagatc	tcattttttca	ttcaacacaa	5580
gacggcttgc	gtgtgagaga	cctaccgtac	gtactcatag	ctgaaaaagg	tatctttacc	5640
aaggggcaaa	atgtcgacgc	ggtggttagct	ttgggcgaca	atctgttcgt	atgcgacgat	5700
atactggttt	tccacgatgc	cattaattttg	ataggtgcac	tgaaagtcgc	tcgatgcggc	5760
atggtgggcg	aatcgtttaa	gtccttcgaa	tataagtgtc	ataatgtctc	cccagggtggc	5820
ggtaagacga	cgacgttagt	ggacgaattc	gttaagtcac	ccaatagcac	agccaccatt	5880
acggctaattg	tgggaagtgc	tgaggacata	aatatggcgg	tgaagaagag	agatccgaat	5940
ttggaagggtc	tcaacagtgc	taccacagtt	aactccaggg	tggtaaactt	tatcgtcagg	6000
ggaatgtata	aaagggtttt	ggttgatgag	gtgcacatga	tgcatacaagg	cttactacaa	6060
ctaggcgtct	tcgcaaccgg	cgcgctcgaa	ggcctctttt	ttggagacat	aaatcagata	6120
ccattcataa	acaggggagaa	ggtgttttagg	atggattgtg	ctgtttttgt	tccaaagaag	6180
gaaagcgttg	tatacacttc	taaatcgtac	aggtgtccgt	tagatgtttg	ctacttgttg	6240
tcctcaatga	ccgtaagggg	aacggaaaa	tgttaccctg	aaaaggctcg	tagcggtaag	6300
gacaaaccag	tagtaagatc	gctgtccaaa	aggccaattg	gaaccactga	tgacgtagct	6360
gaaataaacg	ctgacgtgta	cttgtgcatg	acccagttgg	agaagtcgga	tatgaagagg	6420
tcgttgaagg	gaaaaggaaa	agaaacacca	gtgatgacag	tgcatagaagc	acagggaaaa	6480



Title: GRAPEVINE LEAFROLL VIRUS PROTEINS AND
THEIR USES

Applicant(s): Dennis Gonsalves et al.

Filing Date: April 29, 1999

Serial No.: 09/301,906

Page 11 of 24

Customer No.: 21559

11/24

FIG. 4C

acattcagtg atgtggtatt gtttaggacg aagaaagccg atgactccct attcactaaa 6540
caaccgcata tacttggttg tttgtcgaga cacacacgct cactgggtta tgccgctctg 6600
agctcaaagt tggacgataa ggtcggcaca tatattagcg acgcgtcacc tcaatcagta 6660
tccgacgctt tgcttcacac gttcgccccg gctggttget ttcgaggtat atga 6714



Title: GRAPEVINE LEAFROLL VIRUS PROTEINS AND

THEIR USES

Applicant(s): Dennis Gonsalves et al.

Filing Date: April 29, 1999

Serial No.: 09/301,906

Page 12 of 24

Customer No.: 21559

RECEIVED

FEB 03 2003

TECH CENTER 1600/2900

12/24

FIG. 5

gtcagcggct cagtcagcgc gctgagaggg gatggttaaga aggtcttgat ggaggcaagg 60
acctcaactt ccgcaacttc cgacgtgtct gatttcgacg tcgtattcga agctgtttct 120
aatgcattac ttgtcgtaca ctaccaccgg gtagtgccgt atgcccccggt caagcgcgag 180
cagcctaaac cggctgttaa gcaagatgag cagaagccca aacggcaagc gtcacattgg 240
gctgttaagc caacagctgt tggcgtccac gtaccacttc ctaaaaaaca ggaagcactg 300
gagccagcgc aatcagtccc acaacagtcg ttggaggaga aggcgcctt gacgtttggc 360



Title: GRAPEVINE LEAFROLL VIRUS PROTEINS AND
THEIR USES
Applicant(s): Dennis Gonsalves et al.
Filing Date: April 29, 1999 Serial No.: 09/301,906
Page 13 of 24 Customer No.: 21559

RECEIVED
FEB 03 2003
TECH CENTER 1600/2900

13/24

FIG. 6

VSGSVSALRG DGKKVLMEAR TSTSATSDVS DFDVVFEAVS NALLVVHYHR	50
VVPYAPVKRE QPKPAVKQDE QKPKRQASHW AVKPTAVGVH VPLPKKQEAL	100
EPAQSVPPQS LEEKAALTFG	120



RECEIVED
FEB 03 2003
TECH CENTER 1600/2900

14/24
FIG. 7

ctgaagccgc gggaaaggga gaagctgagg gaactctttc cagagctttc gatacagttc 60
tccgactcgg tcaggagtag tcacccattc gctaatacca tgcggagctg tttcaatgga 120
atcttttcca ggaggtgtgg taatgtgtgc ttcttcgata ttggggggag cttcacgtat 180
catgtcaaag ctggccatgt gaactgtcat gtatgcaatc cagtccatga cgttaaagat 240
gtgaagcgga gaatcaatga gatcctcttt ctttccacag ctgggggaga ttcgtacgtg 300
tccagtgacc ttctaactga agcggcttca aagtctgtgt cttactgtag tcgagaatcg 360
cagaactgcg attctagagc cgatgcgggt tttatggtgg atgtgtacga tatatccccg 420
cagcaggtag cagaggctat ggataagaag ggtgcgctgg ttttcgacat agctcttatg 480
ttccccgtgg agttgttgta cggtaacggt gaagtttact tggaagaact cgatacgttg 540
gtgaagaggg aaggtgatta cctggcctac aatgttggtc agtgtggtga gatgtatgaa 600
cattccttct ctaacgtaag cgggtttttc accttttctt atgtaacgac ttcgtccggg 660
aacgtgttta agctagagta tgagggatac cgttgtggtt accatcatct cactatgtgt 720
agggctcaga agtcacctgg aactgaggtt acgtataggt cgttggtccc gtcgttcgtg 780
ggcaaatacg tggtgttcat acctgttgta gctggt 816



Title: GRAPEVINE LEAFROLL VIRUS PROTEINS AND
THEIR USES

Applicant(s): Dennis Gonsalves et al.

Filing Date: April 29, 1999

Serial No.: 09/301,906

Page 15 of 24

Customer No.: 21559

FILED
JAN 3 2003
FBI CENTER 1600/2900

15/24

FIG. 8

LKPREREKLR	ELFPELSIQF	SDSVRSSHPF	ANAMRSCFNG	IFSRRCGNVC	FFDIGGSFTY	60
HVKAGHVNCH	VCNPVLDVKD	VKRRINEILF	LSTAGGDSYV	SSDLLTEAAS	KSVSYCSRES	120
QNCDSRADAG	FMVDVYDISP	QQVAEAMDKK	GALVFDIALM	FPVELLYGNG	EVYLEELDTL	180
VKREGDYLAY	NVGQCGEMYE	HSFSNVSGFF	TFSYVRTSSG	NVFKLEYEGY	RCGYHHLTMC	240
RAQKSPGTEV	TYRSLVPSFV	GKSLVFIPVV	AG			272



16/24

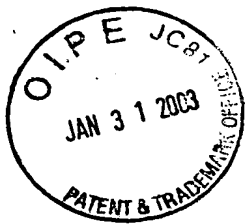
RECEIVED

FEB 03 2003

TECH CENTER 1600/2900

FIG. 9

Consensus #1	MT I	MT Ia	MT II
GLRaV2-MTRP.....F.....S.H.....R.....N.....D.GG.....H.C.P.D.D.R.....		
BYV-MTR	MSEATQNSLTRFYPOFELKFSHSSHDHPAAASRLLENETLVRLCGNS-VSDIGGCPPLFHLHSKTORRVHVCRPVLDGKDAQRRVWRDLQY		
LIIV-MTR	MGEAVQSGLTRAYPQNLSTHVSYSDDHPAAAGSRLLENETLASMAKSS-FSDIGGCPPLFHIK-RGSTDYHVCRIYDMKDAQRRVSRRELQA		
CTV-MTR	LSMDEKKMITNLFDPDIQMSFNQKSYSNHGVFNAMRACENFYFSRKFKNSDYIDAGGDVYSTLRSK-NHNVHICSPRLDLKDAARHIQATVI		
LCV-MTR	MSENQQVMLTRAYPEFNINFIHVSHSDHPVAAGSRALENHLVRKHAGTD-YSDVGGCPPLFHLRA-GHSGVHVCRPVYDVKDAHRRVVRHHQL		
GLRaV3-MTR	LSTRQKKIVCDLFPHLKFEFKETQSSHPVFNVRVTVSNFVLYKMQEGRHFVDFGGNIGTVINSE-CDDVHICNPVADSRDAKRHVDNGLFL		
	LKPREREKRELFPELSIQFSDSVSRSSHFPANAMRSCFNGIFSRRCGNVCFD IGSFTYHVKAG-HVNCHVCNPVLDVKDKRRINEILFL		
Consensus #1	MT I Ia	MT III	
GLRaV2-MTRC.....C.....V.VYD.....AM.....P.....		
BYV-MTR	SNVRLG-DDD--KILEGPRN-IDICHYPLGACDHESSAMMVQVYDASLYEICGAMIKKSRITVLTMTVTPGEFLDGRECVYMESLDCEIEV		
LIIV-MTR	RGLVENLSRE--QLVEAQAAR-VSVCPHTLGCNVCNKSVDLIMVQVYDASLYEIA SAMVLKESKVAYLTMVTPGELLDEREAFIDALGCDVVV		
CTV-MTR	DGLKG-----YGETISFCINKTEDCAVNRDIIIAVEVYDMLRDMAKAMLSHGRKFEFSCIIPPEIFTEKCNVELYEGRLKV--		
LCV-MTR	SKVSLDQSDGVKQVGTWNT-NSVCGN ILGECYHASEAMVMQVYDVPRLRELGRAMINKTSVCMTMTVTPGELLDARESFFIKDLDCSVEL		
GLRaV3-MTR	AKSVG-----VSNNISVCNKLQHCNHSKSDRAVMVEVYDMLTEMCOQMLAHGTIRLDFILLPGDLLEDENITITFDGGCKI--		
	STAGGDSYVSSDLLTEAASKSVSYCSRESQNCDSRADAGFMVDVYDISPQOVAEAMDKKALVFDIALMFFVELLYNGEVYLEELDTLV--		
Consensus #1	MT IV		
GLRaV2-MTRD....Y.....H.....G..F.....		
BYV-MTR	DVHADVVMYKFGSSC--YSHKLSIIKDIMTTPYLTGLG-GFLFSVMEYVRMGVNYFKITKSEVSPSISCTKLLRYRRANSDVVKVLPFRD		
LIIV-MTR	DTRRDMVQYKFGSSC--YCHKLSNIKSIMLTPTAFTFS-GNLFSEVMEYENRMGVNYKITRSAYSPEIRGVKTLRYRRACTEVVQVKLPFRD		
CTV-MTR	TRIGDNVEYYGSGNGETFSHSCQTLKDLISVQVFQFG-GRVFKKTLHESRGQLHFFSICICEKIEPGSVKLTYYQSRSELDKVTLRIPVKD		
LCV-MTR	DPIADRVVYCFNNSA--YTHTYSTICECMRTPCLVVD-GFLFTIEMVSLRCSVNYCITKSSVCPR ISETKRLRYRRCDSDLIRIKIPRYS		
GLRaV3-MTR	TKDDDKVYYYGDAAEAYTHDLNLRNIMTDNLVCVD-GTAFKKTLETSGYGFPRHFSLTKLETFPSGKIEFLTMYDKCEKNKMLVKVPMRN		
	KREGDYLAYNVGQCCEMEYHSFNSVSGFFTFYSYVRTSSGNVFKLEYEGYRCGYHHLTMCRAQKSPGTEVYRSLVPSFVGKSLVFIPIVAVG		



RECEIVED
FEB 03 2003
TECH CENTER 1600/23000

17/24
FIG. 10

gtgggcgaat cgtttaagtc cttcgaatat aagtgcata atgctcccc aggtggcggt 60
aagacgacga cgtagtgga cgaattcggt aagtcaccca atagcacagc caccattacg 120
gctaattgtg gaagttctga ggacataaat atggcggtga agaagagaga tccgaatttg 180
gaaggtctca acagtgtac cacagttaac tccaggggtg taaactttat cgtcagggga 240
atgtataaaa gggttttggt ggatgaggtg cacatgatgc atcaaggctt actacaacta 300
ggcgtcttcg caaccggcgc gtcggaaggc ctcttttttg gagacataaa tcagatacca 360
ttcataaaca gggagaagggt gtttaggatg gattgtgctg tttttgttcc aaagaaggaa 420
agcgttgat acacttctaa atcgtacagg tgtccgtag atgtttgcta cttgttgctc 480
tcaatgaccg taaggggaac ggaaaagtgt taccctgaaa aggtcgtag cggttaaggac 540
aaaccagtag taagatcgct gtccaaaagg ccaattggaa cactgatga cgtagctgaa 600
ataaacgctg acgtgtactt gtgcatgacc cagttggaga agtcggatat gaagaggtcg 660
ttgaagggaa aaggaaaaga aacaccagtg atgacagtgc atgaagcaca gggaaaaaca 720
ttcagtgatg tggattgtt taggacgaag aaagccgatg actccctatt cactaaacaa 780
ccgcatatac ttgttggtt gtcgagacac acacgtcac tggtttatgc cgctctgagc 840
tcaaagttgg acgataagggt cggcacatat att 873



Title: GRAPEVINE LEAFROLL VIRUS PROTEINS AND
THEIR USES
Applicant(s): Dennis Gonsalves et al.
Filing Date: April 29, 1999 Serial No.: 09/301,906
Page 18 of 24 Customer No.: 21559

RECEIVED

FEB 03 2003

TECH CENTER 1600/2900

18/24

FIG. 11

VGESFKSFY	KCYNAPPGGG	KTTTLVDEFV	KSPNSTATIT	ANVGSSSEDIN	MAVKKRDPNL	60
EGLNSATTVN	SRVVNFIVRG	MYKRVLVDEV	HMMHQGLLQL	GVFATGASEG	LFFGDINQIP	120
FINREKVFRM	DCAVFVPKKE	SVVYTSKSYR	CPLDVCYLLS	SMTVRGTEKC	YPEKVVSGKD	180
KPVVRSLSKR	PIGTTDDVAE	INADVLYCMT	QLEKSDMKRS	LKGKGKETPV	MTVHEAQGKT	240
FSDVVLFR TK	KADDSLFTKQ	PHILVGLSRH	TRSLVYAALS	SKLDDKVGTY	I	291



19/24

FIG. 12

atgaatttttg	gaccgacctt	cgaaggggag	ttggtacgga	agataccaac	aagtcatttt	60
gtagccgtga	atgggtttct	cgaggactta	ctcgacgggt	gtccggcttt	cgactatgac	120
ttctttgagg	atgatttcga	aacttcagat	cagtctttcc	tcatagaaga	tgtgcgcatt	180
tctgaatctt	tttctcattt	tacgtcgaaa	atagaggata	ggttttacag	ttttattagg	240
tctagcgtag	gtttaccaa	gcgcaacacc	ttgaagtgt	acctcgtcac	gtttgaaaat	300
aggaatttca	acgccgatcg	cggttgtaac	gtgggttgtg	acgactctgt	ggcgcatgaa	360
ctgaaggaga	ttttcttcga	ggaggtcggt	aacaaagctc	gttttagcaga	ggtgacggaa	420
agccatttgt	ccagcaacac	gatgttgta	tcagattggt	tggacaaaag	ggcacctaac	480
gcttacaagt	ctctcaagcg	ggcttttaggt	tcgtttgtct	ttcatccgtc	tatgttgact	540
tcttatacgc	tcatggtgaa	agcagacgta	aaacccaagt	tggacaatac	gccattgtcg	600
aagtacgtaa	cggggcagaa	tatagtctac	cacgataggt	gcgtaactgc	gcttttttct	660
tgcattttta	ctgcgtgcgt	agagcgctta	aaatacgtag	tggacgaaag	gtggctcttc	720
taccacggga	tggacactgc	ggagttggcg	gctgcattga	ggaacaattt	gggggacatc	780
cggcaatact	acacctatga	actggatatc	agtaagtacg	acaaatctca	gagtgtcttc	840
atgaagcagg	tggaggagtt	gatactcttg	acacttggtg	ttgatagaga	agttttgtct	900
actttctttt	gtggtgagta	tgatagcgtc	gtgagaacga	tgacgaagga	attggtgttg	960
tctgtcggct	ctcagaggcg	cagtgggtgt	gctaacacgt	ggttgggaaa	tagtttagtc	1020
ttgtgcacct	tgttgtcctg	agtacttagg	ggattagatt	atagttatat	tgtagttagc	1080
ggtgatgata	gccttatatt	tagtcggcag	ccgttgata	ttgatacgtc	ggttctgagc	1140
gataattttg	gttttgacgt	aaagattttt	aaccaagctg	ctccatattt	ttgttctaag	1200
tttttagttc	aagtcgagga	tagtctcttt	tttgttcccg	atccacttaa	actcttcggt	1260
aagtttgag	cttccaaaac	ttcagatatc	gaccttttac	atgagatttt	tcaatctttc	1320
gtcgatcttt	cgaaggggtt	caatagagag	gacgtcatcc	aggaattagc	taagctgggtg	1380
acgcggaaat	ataagcattc	gggatggacc	tactcggctt	tgtgtgtctt	gcacgtttta	1440
agtgc aaatt	tttcgcagtt	ctgtaggta	tattaccaca	atagcgtgaa	tctcgatgtg	1500
cgcctatttc	agaggaccga	gtcgctttcc	ttgctggcct	tgaaggcaag	aattttaagg	1560
tggaaagctt	ctcgttttgc	cttttcgata	aagaggggt			1599



Title: GRAPEVINE LEAFROLL VIRUS PROTEINS AND
THEIR USES

Applicant(s): Dennis Gonsalves et al.

Filing Date: April 29, 1999

Serial No.: 09/301,906

Page 20 of 24

Customer No.: 21559

RECEIVED

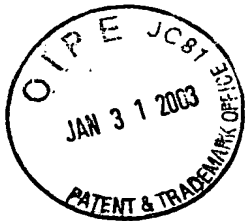
FEB 03 2003

TECH CENTER 1600/2900

20/24

FIG. 13

MNFGPTFEGE	LVRKIPTSHF	VAVNGFLEDL	LDGCPAFDYD	FFEDDFETSD	QSFLIEDVRI	60
SEFSHFSTSK	IEDRFYSFIR	SSVGLPKRNT	LKCNLVTFEN	RNFNADRGCN	VGCDSDVAHE	120
LKEIFFEEVV	NKARLAEVTE	SHLSSNTMLL	SDWLDKRAPN	AYKSLKRALG	SFVFHPSMLT	180
SYTLMVKADV	KPKLDNTPLS	KYVTGQNIVY	HDRCVTALFS	CIFTACVERL	KYVVDERWLF	240
YHGMDTAEAL	AALRNNLGDI	RQYYTYELDI	SKYDKSQSAL	MKQVEELILL	TLGVDREVLS	300
TFFCGEYDSV	VRTMTKELVL	SVGSQRRSGG	ANTWLGNSLV	LCTLSSVVLRL	GLDYSYIVVS	360
GDDSLIFSRQ	PLDIDTSVLS	DNFGFDVKIF	NQAAPYFCSK	FLVQVEDSLF	FVPDPLKLFV	420
KFGASKTSDI	DLLHEIFQSF	VDLSKGFNRE	DVIQELAKLV	TRKYKHSGWT	YSALCVLHVL	480
SANFSQFCRL	YYHNSVNLDV	RPIQRTELSL	LLALKARILR	WKASRFAPSI	KRG	533



Title: GRAPEVINE LEAFROLL VIRUS PROTEINS AND
THEIR USES

Applicant(s): Dennis Gonsalves et al.

Filing Date: April 29, 1999

Serial No.: 09/301,906

Page 21 of 24

Customer No.: 21559

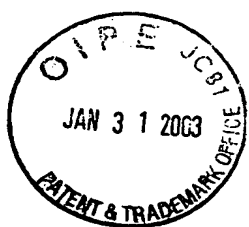
21/24

FIG. 14

atgttatggt gttcagccag tgtcaaattt tcaaacgggt tacaattatc gctacttatt 60

tgcgcatggt tgtttagcgggt gctaattggt agcttttgta gaaggcgatg a

111



Title: GRAPEVINE LEAFROLL VIRUS PROTEINS AND

THEIR USES

Applicant(s): Dennis Gonsalves et al.

Filing Date: April 29, 1999

Serial No.: 09/301,906

Page 22 of 24

Customer No.: 21559

22/24

FIG. 15

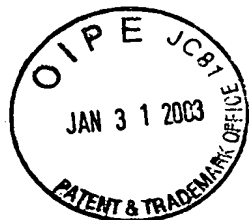
RECEIVED

FEB 03 2003

TECH CENTER 1600/2900

MLCCSASVKF SNGLQLSLLI CACLLAVLIV SFCRRR

36



RECEIVED

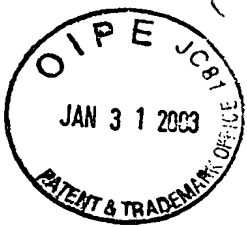
FEB 03 2003

TECH CENTER 1600/2900

23/24

FIG. 16

MDYIRPLRVF	SFPHVNTLE	YVRYNKANGD	VGAFLTMMKF	IGNVKLSDF	PRCAAMIYIG	60
KLTKGVKRTF	VPPPVKGFAR	QYAVVSGSVS	ALRGDGKKVL	MEARTSTSAT	SDVSDFDVVF	120
EAVSNALLV	HYHRVVPYAP	VKREQPKPAV	KQDEQKPKRQ	ASHWAVKPTA	VGHVHPLPKK	180
QEALEPAQSV	PQOSLEEKAA	LTFGLFFSKG	GGDESDAVIL	RKGKLFNRAL	NVPIDVKNTF	240
VWAKIWDEAS	RRRGYFYVKD	RAVKFFPIVR	GRATIEDFIV	NTAPGCDVAL	PRIELWSMRE	300
RAFVCTTKGW	CWFNNERLRG	EIYRRRCFSS	SFSIGFLMHL	GFRSLKVIRF	AGTNILHMPS	360
LNEERTFGWK	GGDVYLPNVP	KTAIVAGDRT	RLGGEILASV	ANALNQEENV	SSVSSITNR	420
LVLRDQSALL	SHLDTKLCDM	FSQRDAMIRE	KPSHRCDVFL	KPREREKLRE	LFPELSIQFS	480
DSVRSSHPPA	NAMRSCFNIG	FSRRCGNVCF	FDIGGSFTYH	VKAGHVNCHV	CNPVLDVKDV	540
KRRINEILFL	STAGGDSYVS	SDLLTEAASK	SVSYCSRESQ	NCDSRADAGF	MVDVYDISPQ	600
QVAEAMDKKG	ALVFDIALMF	PVELLYGNGE	VYLEELDTLV	KREGDYLAYN	VGQCGEMYEH	660
SFSNVSGFFT	FSYVRTSSGN	VFKLEYEGYR	CGYHHLTMC	AQKSPGTEVT	YRSLVPSFVG	720
KSLVFIPVVA	GSSVSFKTIV	LDSDFVDRIY	SYALNTIGTF	ENRTFEYAVG	AVRSQKTHVI	780
TGSRVVHSKV	DISPDDMWGL	VVAVMAQAIK	DRAKSIRSYN	FIKASEGSLA	GVFKLFFQTV	840
GDCFSNAVSV	YAKAMVHDNF	NVLETLMSP	RAFIRKVPGS	VVTICTSGA	SDRLELRGAF	900
DISKETFGRK	LKNSRLRVFS	RAIVEDSIKV	MKAMKTEDGK	PLPITEDSVY	AFIMGNVSNV	960
HCTRAGLLGG	SKATVVSSVS	KGLVARGAAT	KAFSGITSFF	STGSLFYDRG	LTEDERLDAL	1020
VRTENAINSP	VGILETSRVA	VSKVVAGTKE	FWSEVSLNDF	TTFVLRNKVL	IGIFVASLGA	1080
APIAWKYRRG	IAANARRYAG	SSYETLSSLS	SQAAGGLRGL	TSSTVSGGSL	VVRRGFSSAV	1140
TVTRATVAKR	QVPLALLSFS	TSYAISGCSM	LGIWAHALPR	HLMFFFGLGT	LLGARASANT	1200
WKFGGFSNNW	CAVPEVVWRG	KSVSSLLLP	TLGVSLIIRG	LLNDTIPQLA	YVPPVEGRNV	1260
YDETLRYYRD	FDYDEGAGPS	GTQHEAVPGD	DNDGSTSSVS	SYDVVTNVRD	VGISTNGEVT	1320
GEEETHSPRS	VQYTYVEEEV	APSAAVAERQ	GDPSGSGTAD	AMAFVESVKK	GVDDVFHQQS	1380
SGETAREVEV	DGKGLLPESV	VGEAPTQERG	RAADGNTAQT	AVNEGDREPV	QSSLVSSPQA	1440
DIPKVTQSEV	HAQKEVKQEV	PLATVSGATP	IVDEKPAPSV	TTRGVKIIDK	GKAVAHVAEK	1500
KQVQVEQPKQ	RSLTINEGKA	GKQLCMFRTC	SCGVQLDVYN	EATIATRFSN	AFTFVDNLKG	1560
RSVFFFSKLG	EGYTYNGGSH	VSSGWPRALE	DILTAIKYPS	VFDHCLVQKY	KMGGGVPFHA	1620
DDEECYPSDN	PILTVNLVGK	ANFSTKCRKG	GKVMVINVAS	GDYFLMPCGF	QRTHLHSVNS	1680
IDEGRISLTF	RATRRVFGVG	RMLQLAGGVS	DEKSPGVPNQ	QPQSQGATRT	ITPKSGGKAL	1740
SESGGREVKG	RSTYSIWCEQ	DYVRKCEWLR	ADNPVMALEP	DYTPMTFEVV	KTGTSEDAVV	1800
EYLYLAIGI	ERTYRALLMA	RNIAVTTAEG	VLKVPNQVYE	SLPGFHVYKS	GTDLIHFSTQ	1860
DGLRVRDLPY	VLIAEKGIFT	KGKDVEDAVVA	LGDNLFVCDD	ILVFHDAINL	IGALKVARCG	1920
MVGESFKSFE	YKCYNAPPGG	GKTTTLVDEF	VKSPNSTATI	TANVGSSEDI	NMAVKKRDPN	1980
LEGLNSATTV	NSRVVNFIVR	GMVKRVLVDE	VHMMHQGLLQ	LGVFATGASE	GLFFGDINQI	2040
PFINREKVFR	MDCAVFVPPK	ESVYTSKSY	RCPLDVCYLL	SSMTVRGTEK	CYPEKVVSGK	2100
DKPVVRSLSK	RPIGTTDDVA	EINADVILCM	TQLEKSDMKR	SLKGKGKETP	VMTVHEAQGK	2160
TFSDVVLFR	TKADDSLF	QPHILVGLSR	HTRSLVYAAL	SSKLDDKVGT	YISDASPQSV	2220
SDALLHTFAP	AGCFRGI					2237



Title: GRAPEVINE LEAFROLL VIRUS PROTEINS AND
THEIR USES

Applicant(s): Dennis Gonsalves et al.

Filing Date: April 29, 1999

Serial No.: 09/301,906

Page 24 of 24

Customer No.: 21559

RECEIVED
FEB 03 2003

TECH CENTER 1600/2900

24/24

FIG. 17

aaaaatcctt caataaatTT gaaataaaca aaagtaagaa aaatgaaata attaggctag 60
tctttttggt cgtctttcgc tttttagtaa taggttttat ttcgaggtaa gatgactaaa 120
ctttacctca cggtttaata ctctgatatt tgtaaaatta gtccgtaaag tcgatagtga 180
tattatatta gtatagtata ataaacgcc aatccaatt aaagtttggg acctaggcgg 240
gcctcttacg aggctaactt atcgacaata agttaggtc 279